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Case Docket No. 6971-
Date: May 25, 2005

Robert D. Touslee
Signature

THE COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

Re: Application of: Arterburn Art Unit: 1731
Serial No.: 08/929,836 Examiner: John Hoffmann
Filed: September 15, 1997
For: IMPROVED SCREEN FOR FIBERIZING BUSHINGS AND METHOD

Sir:

Transmitted herewith is/are the following document(s) related to the above-identified application:

- ☐ Notice of Appeal
- ☐ Associate Power of Attorney
- ☒ Brief on Appeal (in triplicate)
- ☐ Request for Oral Hearing

Please extend the time for filing the Notice of Appeal _____ () months to _____.

The fee has been calculated as shown below:

Notice of Appeal	\$500.00	
Appeal Brief	\$500.00	500.00
Request for Oral Hearing	\$1000.00	
Fee for Extension of Time		
1 month \$120.00, 2 months \$450.00, 3 months \$1020.00		
Total		500.00

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☒ Two additional copies of this sheet are enclosed.

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In re Application of: Arterburn

Art Unit: 1731

Serial No. 08/929,836

Case Docket No. 6971

Filed: September 15, 1997

Examiner: John Hoffmann

For: **IMPROVED SCREEN FOR FIBERIZING BUSHINGS AND METHOD**

Commissioner of the Patents & Trademarks
Washington, D. C. 20231

Dear Sir:

In response to a Notification of Non-Compliant Appeal Brief this Amended Appeal Brief is submitted. The original Appeal Brief was in response to the Final Office Action mailed on April 26, 2004, and the Examiner's refusal to enter the Rule 1.116 amendment filed on July 14, 2004, Applicant appealed the final rejection of the application.

AMENDED APPEAL BRIEF (Amended 5/2005)

Real Party In Interest

The real party in interest is Johns Manville International, Inc.

Related Appeals and Interferences

There was an appeal earlier in this application and a decision was rendered, see Board of Appeals decision on Appeal No. 2000-0035, copy in Related proceedings appendix. That decision reversed all of the Examiner's rejections, but made a new rejection under 35 USC 112, second paragraph. At the time that this second appeal was filed there was no other related appeal pending, but since that time an appeal was filed in a continuation application, S. N. 10/421,683, filed on April 23, 2003. The issues in that appeal are similar to some of the issues in this appeal.

Status of the Claims

Claims 1, 3 and 5-7 are allowed.

Claims 2, 4 and 8-24 were finally rejected.

Applicant appeals from:

The final rejection of claims 2, 4, and 8-24 under 35 USC 112, second paragraph and the final rejection of claims 16-20 under 35 USC 112, first paragraph.

Status of Amendments

After the Final Office Action, an amendment was filed on July 14, 2004, to attempt to resolve the outstanding issues. This amendment was not entered because although claim 21 was identified as "Previously presented" it contained a letter, a, that was struck through. This "a" was actually a remnant of an earlier amendment to the First Office action and unfortunately had been inadvertently overlooked by applicant's attorney. The Examiner said that this raised a new issue and that the amendment would not be entered for purposes of appeal.

Summary of the Invention:

The invention involves an improved bushing for making glass fibers from molten glass. Referring to Figures 2, 3 and 5 and the paragraph spanning pages 1 and 2 for background, bushings, normally made from a precious metal alloy of platinum and rhodium, are generally box-shaped devices, open at the top and having a screen 34 having holes therein, at least one side wall 26 (while a rectangular bushing having more than one sidewall is used to describe the bushing, round and oval bushings are known and they have only one sidewall), a tip plate 22, usually having a large number of nozzles 24 thereon through which the molten glass flows through to form glass fibers. Different size bushings containing various numbers of nozzles and various sizes of screens are used

depending upon the type of glass fiber product being produced. The screen 34 is normally spaced above the tip plate 22 and has a purpose of catching any channel or leg refractory pieces that might come in with the molten glass and also to provide a mixing action to the molten glass. The bushing operates normally at temperatures exceeding 2000 degrees F. The molten glass flowing into the bushing is desirably near the desired fiberizing temperature, but has variations in temperature across the glass stream, and also the bushing loses a lot of heat to the atmosphere so the bushing is heated by passing an electrical current through the metal bushing.

Independent claim 2 and dependent claims 8 and 9-10 cover a bushing like that shown in Figure 5 and described above, but with the improvement of having a screen like that shown in Figures 6, 6 A and 6 B, in place of a conventional screen like 34 in Figure 5, see page 4, first full paragraph and page 6, the first embodiment mentioned in the first full paragraph. The bushings of these claims have a screen that has a generally mid or central portion 48, and two end portions 50 and 52, one end portion being on either side of the central portion 48 and one of the end portions 50 being smaller in area than the other end portion 52, the generally mid or central portion 48 having a hole area per unit area of screen that is significantly smaller than a hole area per unit area of screen of the two end portions of the screen. Further explanation of the problem the bushings of these claims solve is presented in the first paragraph of the Summary beginning on page 3. Hole area is the same as open area, see page 7, first 13 lines. The hole area, total open area, in the screen can be modified by changing the size or the density of the holes or by changing both, see the last full paragraph on page 5 and the next paragraph spanning pages 5 and 6. The holes are typically round in shape (Figs. 3, 6), but "can be made by punching or otherwise making holes, slits or other openings in a precious metal sheet, or by weaving precious metal wire in a known manner to produce the openings prescribed above", see page 14, the last sentence of the first full paragraph.

The bushing of these rejected claims is for use in the fiberizing the one or two positions in each leg that are closest to a channel, called channel positions,

see page 2, first sentence of the second full paragraph and page 11, second sentence of the first full paragraph. In the channel positions the glass temperature exceeds the desired temperature, see page 9, second paragraph and page 11, second sentence of second full paragraph. A furnace produces molten glass melting sand and fluxing materials and supplies the molten glass through one or more channels into "bushing legs" that communicate with the channel on one end and also with a plurality of spaced apart bushings through openings in the bottom of each leg, see Figure 1 and page 1, second paragraph. A furnace, which typically costs in excess of \$50 million, lasts for 6 or more years and, due to increases in productivity of the bushings throughout its life, is usually being pulled beyond its design capacity, particularly in the latter years of its life. This over-pull causes the molten glass coming into the legs to be hotter than desired and this causes the first one or two bushings located closest to the channel, the channel positions, to operate at a substantially lower productivity than the bushings further down the leg see page 2 first and second full paragraphs and page and page 9, lines 10-12 of the last paragraph. Typically there are 8 or more legs connected to the one or more channels with at least 5 and usually 10 or more bushings in each leg.

Molten glass is like syrup, the higher the temperature, the lower its viscosity. When excessively hot glass, having a relatively low viscosity, contacts mainly a mid or center portion of the screen in a conventional bushing, it flows too rapidly through the center portion and down to the tip plate where it is too hot when it reaches the nozzles. When the glass is too hot as it exits the end of the nozzle, it will break causing an interruption of the fiberizing of the bushing. This screen does so by having a significantly reduced hole area per unit of screen area in a generally mid or central portion 48 of the bushing screen 46, i.e. the area of the screen 46 where most of the hottest glass contacts the screen 46, while end portions 50, 52, on either side of the generally mid or central portion 48 have a higher hole area per unit of screen area than the generally mid or central portion 48. Importantly, one of the end portions, 50 has a smaller area than the other end portion, 52, to offset the generally mid or central portion 48 on the screen 46

so that the central portion 48 intercepts the major portion of the incoming glass stream. Since the incoming molten glass stream is flowing laterally down a leg 6 or 8 (Fig. 1) in a downstream direction, it maintains a portion of that vector when it enters the bushing due to the length of the openings. through the bottom of the leg, in the direction of flow, (16.5 to about 20 inches long and 1-3 inches wide, see page 10, first full paragraph) and tends to strike the bushing screen off center.

Independent claim 11, and dependent claims 12-15, cover a lay-in screen like that shown in Figs. 6, 6A and 6B, that can be laid on top of a conventional screen, like the conventional screen 34 in the bushing shown in Figure 5, and described in the second full paragraph of page 5. Such a lay-in screen reduces the number and types of bushings that must be inventoried to replace failed bushings during operation, see also page 6, second full paragraph. This is an important advantage due to the substantial value of the precious metal in each bushing. Claims 12-15 depend from claim 11 and further define "significantly less" as used to describe how much smaller the hole area is in the mid or central portion of the screen compared to the hole area in the two end portions of the screen.

Rejected claims 16-20 describe a method of making fibers from a molten material by flowing the molten material through a bushing, the improvement being that the bushing has a second screen lying on top of a first conventional screen, the second screen being being of the type described in the paragraphs above. Dependent claims 17-19 further define "significantly smaller" as described on page 6, last sentence of the first full paragraph.

Rejected claims 21 and 22 describe a method of making fibers from a molten material by flowing the molten material through a bushing, like that described in rejected claim 2, mounted in a multi-bushing leg attached to a channel in a first position next to the channel, the bushing being mounted such that the end portion of the screen that is smallest in area is closer to the channel

than the end portion of the screen having the larger area, see the last sentence on page 5 and extending into page 6, and Fig. 6.

Rejected claims 23 and 24 describe a method of making fibers from a molten material by transporting molten material from a melting tank through a channel, see page 8, Detailed Description, first 8 lines, and a multi-bushing leg and flowing the molten material through a bushing having a first conventional screen and a second screen lying on top of the first screen, the bushing being in a first position, next to the channel, the second screen lying on top of the first screen being like that shown in Figs. 6, 6A and 6B and described in the paragraph spanning pages 5 and 6. The mid or center portion of this screen has a greater resistance to flow than the resistance to flow through the two end portions of the screen, see lines 10-13 of the last partial paragraph on page 4, "the area of the screen where smaller and/or fewer holes/unit area are placed for decreased flow" read in light of page 3, lines 4-8, confirming what is known that the smaller the hole area per unit area, the greater the resistance to flow of the molten material through the screen.

Applicant believes that the claims contain no means plus function or step plus function terms, but in the Notification of Non-Compliant Appeal mailed on April 26, 2005, the Examiner urged that the claims contain means plus function terms or step plus function terms giving as non-exhausting examples "at least one sidewall" in claim 2 and "transporting" in claim 21. Applicant does not believe that "at least one sidewall" is a means plus function term, but instead is a structural term, see element 26 in Figs. 3 and 5 and described at page 4, lines 4- 5 and page 10 lines 4-7 of the second paragraph. Bushings with high radius round corners and oval shaped bushings are known in the art and can be described as having only one sidewall, especially when the sidewall is made as a single piece. The rectangular bushing used to illustrate the invention is also encompassed in the term "having at least one sidewall" because it has at least one sidewall because this term also encompasses bushings having more than one sidewall. Note also that the term in question by the Examiner is acknowledged as being known because it is in the preamble of the claim.

The “transporting the molten material in a channel” in claim 21 is also a positive or active step, not a step plus function i. e. it requires a known channel for containing and transporting molten material and known techniques of causing the molten material to flow through the channel – the molten material flows through the channel in a very old and well known manner, see page 1, the first sentence of the second paragraph, and page 8, the first sentence of the last partial paragraph. Also note that in claim 21 the bushing is mounted in a first bushing position next to the channel. This latter step is prerequisite to flowing the molten material through the bushing, but all of this is well known prior art. The operative step is using the screen of the invention in the bushing, and this screen is described in a structural or physical manner and its orientation is also described in a structural or physical manner.

Grounds of rejection to be reviewed on appeal:

1. Claims 2, 4 and 8-24 stand rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention because of the terms “portions”, “end portion” and “central portion” in claims 2, 4, 8-15 and 21-24, the term “at least some of the holes having a diameter” in claim 16, and a period in line 5 of claim 23.
2. Claims 16-20 stand rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement because the Examiner urges that the term “at least some of the holes having a diameter” was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor had possession of the claimed invention at the time the application was filed.

ARGUMENTS:

1. The rejection of claims 2, 4 and 8-24 under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention because of the terms “portions”, “end portion” and “central portion” in claims 2, 4, 8-15 and 21-24, and the term “at least some of the holes having a diameter” in claim 16 is in error and should be reversed. The period in line 5 of claim 23 is an inadvertent oversight and the Examiner is given the authority to change it to a comma by Examiner’s amendment.

The Examiner states that he is at a complete loss as to how to determine the scope of these terms and furthermore that one of ordinary skill in the art would not be able to tell whether their end portions that occur at the end of a screen constitute an “end portion”, and the same with “central portion”. Applicant believes that the Examiner has erred in this rejection and the reasons on which it is based. In the Final Action, the Examiner stated that the Board of Appeals in a decision on an earlier appeal indicated that “various terms” were indefinite and that the “end portion” language is one of the various indefinite terms. Applicant disagrees because the Board of Appeals did not so state. Instead the Board of Appeals held that the Examiner could not, having the benefit Applicants’ disclosure, arbitrarily devise an embodiment or embodiments and then reject Applicants’ claims based on this embodiment. The Board of Appeals did not agree with the Examiners interpretation of the teaching of the reference but used the terms “central portion” and “end portions” and did not indicate any indefiniteness with these terms when using them. In the Advisory Action the Examiner admitted that “Nothing can be ascertained from the Decision on Appeal as to whether the Board would hold the terms indefinite.”

All of these rejected terms refer to a screen in the bushing. The dictionary defines the term “portion” as a part of the whole and the use here is consistent with that definition. As is well known to one of ordinary skill in the art of making

and using bushings for making glass fibers, and as disclosed herein, many types and sizes of bushings are used in the industry including bushings having widely different numbers of nozzles, i. e. making vastly different numbers of fibers from each bushing depending upon several factors, namely the type of fiber product being produced, and sometimes the size of the furnace. The different size bushings also differ in the physical size of the cross section of the bushing and the dimensions or area of the screen and tip plate. The disclosure of the problems being addressed and the invention for solving problems is described in the Summary on pages 3-5 of the specification. This disclosure adequately describes the terms at issue to one of ordinary skill in the fiberizing bushing art. Further, an embodiment is described in detail beginning on page 12, last partial paragraph through the only full paragraph on page 14, using the type of bushing screen shown in Figures 6, 6A and 6B. From this disclosure it is readily apparent where the "mid or central portion" of the screen is located and where the "end portions" of the screen are located, including the larger of the two end portions, see the last two lines of page 3, the first three lines of page 4, lines 10-13 of the paragraph spanning pages 4 and 5, and as illustrated in Figure 6.

The Examiner admits on page 4, third full paragraph, of the Final Action that applicant is not required to define these "portions" in the claims in terms of units of area (or dimensions), and to do so would be meaningless because these vary with the size of the bushing being used with the invention. The Examiner seemed to suggest in the same paragraph that the rejection could be overcome by "removing all mention of all portions, but applicant does not believe that doing so would leave the claims complete because that would leave "ends" of the screen and that would not define the invention. It is end portions, one end portion being on opposite sides of the generally mid or central portion that define the invention in terms of differing hole area per unit area of screen. It is necessary to use a term like "portion", "part", "section", "fragment" "region", etc. to particularly point out and claim the invention. Claims in another patent issued by the Patent Office on the same, or very similar invention, filed after the filing date of the present invention, U.S. Patent No. 5,935,291, uses the term "central region". The term "central portion" is just as definite as "central region". While this is not

absolute proof, it certainly is evidence of definiteness. Further, the terms "end portion" and "central or mid portion" is commonly used in patent claims. When the term "end portion" was plugged into the USPTO Patent Search System and only the claims were searched, more than 85,000 patents came up as containing this term in patents issued since 1976. When the term "central portion" was searched in the same manner, more than 35,000 patents were reported to have this term in one or more claims. This is further proof that these terms meet the requirements of 35 USC 112, second paragraph.

The Examiner's reason for thinking otherwise appears to be the way he has interpreted the Decision from an earlier appeal in this application. Applicant's attorney believes the inference the Examiner seems to be making from that decision is totally lacking in support and is in error. The Examiner stated on page 5 of the Final Action that "the Board and Applicant have both determined Stalego (a patent used in a prior art rejection that was reversed by the Board in the earlier appeal) does not have "end portions". This conclusion is erroneous. What Applicant urged was that nothing in the Stalego patent teaches or suggests the claimed invention structure or the reason for the structure, addressing the problem with channel positions on a leg. What the Board concluded with respect to Stalego was that "a rejection under 35 USC 102 or 103 cannot be based on speculations and assumptions" and that "the Examiner failed to establish a prima facie case of anticipation or obviousness regardless of how the claims are interpreted." (emphasis added).

For the above reasons applicant believes that the terms "end portion", "end portions" and "central portion" as used to describe a bushing screen are not indefinite and do particularly point out and claim the invention in accordance with 35 USC 112, second paragraph, and respectfully requests the Board of Appeals to reverse this rejection.

Claim 16 stands further rejected under 35 USC 112, second paragraph, because the Examiner states that the 5th line requires a uniform hole size and density. The Examiner states that if only some of the holes have a diameter than

some of the holes could not have a diameter and this is indefinite. The Examiner erred in ignoring the full term in the 5th line, “the first screen having a generally uniform hole size and density” (emphasis added). Generally uniform does not mean the exact same size. The specification clearly teaches that although round holes are typically used, other shapes of holes can be used, by drilling, punching or otherwise making holes, slits or other openings in a precious metal sheet, see page 14, the last 4 lines of the first full paragraph, and the 4th through the 6th lines of page 7. Also, on page 7, lines 10-13, it is stated that the “hole size”, as used herein to describe the invention, means the diameter of the holes in the screen, or a portion of the screen, or the area of the holes, unless otherwise stated.

From this disclosure, one of ordinary skill in the art would be advised that not all of the holes in the screen need be round, i. e. having a diameter, and that at least some of the holes could be another shape, not having a diameter, so long as the other limitations of the claims are satisfied, such as generally uniform size and density, in this case size referring to area of the holes when other than round holes are present. Therefore, when reading the claims in the light of the disclosure, the term “at least some of the holes having a diameter” is not inconsistent with, or make indefinite, the term “the first screen having a generally uniform hole size and density.”

For the above reasons applicant believes that the term “at least some of the holes having a diameter”, as used to describe a bushing screen, are not indefinite or in conflict with the term “having a generally uniform hole size and density” and does particularly point out and claim the invention in accordance with 35 USC 112, second paragraph, and respectfully requests the Board of Appeals to reverse this rejection.

2. The rejection of claims 16-20 under 35 USC 112, first paragraph, as failing to comply with the written description requirement because the Examiner urges that the term “at least some of the holes having a diameter” was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor had possession of the claimed invention at the time the application was filed is erroneous and should be reversed.

The Examiner stated that the specification does not describe in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Applicant believes the Examiner erred in this conclusion. The term “at least some of the holes having a diameter” was added by amendment in response to a “lack of antecedent basis” for the term “the diameter” appearing in the 11th line of claim 16. Basis for holes of different shapes in the screen is found on pages 5, 7 and 14 of the specification. The second full paragraph on page 5 describes the use of a screen having smaller hole sizes and/or hole densities, and later it is explained that the use of smaller hole sizes, smaller hole densities or both is used to increase the resistance to flow of molten glass through the screen or portion of the screen. The term “hole density” is defined at the top of page 7, and in lines 4-6, it is stated that although round holes, are used for purpose of illustration of the invention, other shaped holes can be used in the invention. At the end of that same paragraph it is stated that hole size means the diameter of the holes or the area of the holes. The specification clearly teaches that although round holes are typically used, other shapes of holes can be used, by drilling, punching or otherwise making holes, slits or other openings in a precious metal sheet, see above with page 14, the last 4 lines of the first full paragraph. Obviously, the holes are not round and do not have a diameter in a woven metal wire screen.

From this disclosure applicant believes that one of ordinary skill in the art would reasonably conclude that in the invention disclosed, the holes in the screens need not be round and that not all of the holes need be round or have a

diameter. That the shape of the holes is a mere matter of choice and that it is the hole area per unit of screen area in the different portions of the screen that is important.

For the above reasons applicant believes that the term "at least some of the holes having a diameter" does have descriptive support in the specification meeting the requirements of 35 USC 112, first paragraph, and respectfully requests the Board of Appeals to reverse this rejection.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert D. Touslee", written over a horizontal line.

Attorney for Applicants

Robert D. Touslee
Registration No. 34,032
(303-978-3927)

Claims appendix

List of claims involved in the appeal:

2. (Previously presented) A bushing for making fibers from a molten material, said bushing comprising at least one sidewall, a tip plate or orifice plate through which the molten material flows to form the fibers, and a screen having a plurality of holes therethrough, said screen mounted on an interior of the bushing and spaced above a top of the tip plate or orifice plate, said screen being attached to said at least one sidewall, the improvement comprises a generally mid or central portion of the screen having a hole area per unit area of screen that is significantly smaller than a hole area per unit area of screen of two end portions of the screen, one end portion being on either side of the mid or central portion, one of said end portions being smaller in area than the other of said end portions.-

4. (Previously presented) The bushing of claim 2 wherein said molten material is glass and said bushing, including the first screen and the second screen, is made from a precious metal or precious metal alloy with a major portion of said metal or metal alloy being platinum and wherein said second screen has a thickness of between about 0.009 to about 0.015 inch.

8. (Previously presented) The bushing of claim 2 wherein said significantly smaller is at least 10 percent smaller and a total hole area in said end portions ranges between about 10 to about 16 percent of total area of the end portions.

9. (Previously presented) The bushing of claim 8 wherein said significantly smaller is at least 20 percent smaller.

10. (Previously presented) The bushing of claim 9 wherein the hole area per unit area of screen in said mid or central portion is at least 30 percent less than the hole area per unit area of said end portions.

11. (Previously presented) A lay in screen of a precious metal or precious metal alloy for laying on top of another screen in a fiberizing bushing, said lay in screen having a plurality of holes therethrough, said lay in screen comprised of a mid or central portion and two end portions, said mid or central portion having a hole area per unit area of the mid or central portion that is significantly less than a hole area of the two end portions per unit area of the two end portions, one of the two end portions being smaller than a remaining end portion, and said lay in screen having a thickness in a range between about 0.009 and 0.011 inch.

12. (Original) The screen of claim 11 wherein said significantly less is at least 10 percent.

13. (Original) The screen of claim 12 wherein said significantly less is at least 20 percent.

14. (Original) The screen of claim 13 wherein said significantly less is at least 25 percent.

15. (Original) The screen of claim 14 wherein said significantly less is at least 30 percent.

16. (Previously presented) A method of making fibers from a molten material wherein said molten material flows into a bushing comprising at least one sidewall and a tip plate or orifice plate through which the molten material flows to form the fibers, said bushing further comprising a first screen having holes therein through which the molten glass flows, the first screen having a generally uniform hole size and density, at least some of the holes having a diameter, said first screen having a percentage of hole area per unit of screen area of said first screen, said first screen being spaced above said tip plate or orifice plate, said first screen being attached to said at least one sidewall, the improvement comprising using a second screen lying on top of said first screen, said second screen having holes therein through which the molten glass flows, at least some of the holes in said second screen having a diameter smaller than the diameter of the at least some

of the holes in said first screen, and said second screen having a significantly lower percentage of hole area per unit of screen area than the percentage hole area per unit of screen area of said first screen such that resistance to flow of the molten material through the second screen is greater than the resistance to flow of the molten material through the first screen.

17. (Previously presented) The method of claim 16 wherein said molten material is glass and said bushing is made from precious metal or alloys of precious metal containing a majority of platinum, wherein a thickness of said second screen is between about 0.009 and 0.015 inch and wherein said significantly lower is at least about 10 percent lower.

18. (Original) The method of claim 17 wherein said significantly lower is at least about 20 percent lower.

19. (Original) The method of claim 18 wherein said significantly lower is at least about 30 percent lower.

20. (Previously presented) The method of claim 16 wherein said bushing is used to make direct chopped fibers at maximum productivity having a diameter that is at least three microns smaller than the fiber that a bushing containing only said first screen can make at maximum productivity.

21. (Previously presented) A method for forming fibers in at least one multi-bushing leg attached to a channel that receives molten material from a melting tank, by transporting the molten material in the channel to the at least one multi-bushing leg and by flowing the molten material through a bushing mounted in a first bushing position next to the channel in the at least one multi-bushing leg, said bushing comprising at least one sidewall and a tip plate or orifice plate through which the molten material flows to form the fibers, and a screen in said bushing spaced above said tip plate or orifice plate and having a plurality of holes therein through which the molten material flows, said screen being attached to said at least one sidewall, the improvement comprising using as said screen in

said bushing a screen that has holes in at least a mid or central portion and in two end portions, one end portion being on one side of said mid or central portion and another end portion being on an opposite side of said mid or central portion, said screen having a hole area per unit of screen area in the mid or central portion of the screen that is significantly less than a hole area per unit of screen area in the two end portions of the screen, one of the two end portions of the screen being located closer to said channel than the another end portion, the one of the two end portions located closer to said channel being smaller in area than the another end portion that is located further away from said channel.

22. (Previously presented) The method of claim 21 wherein significantly less than is at least about 30 percent less.

23. (Previously presented) A method for forming fibers from a molten material in at least one multi-bushing leg on a channel that receives the molten material from a melting tank, comprising transporting the molten material in the channel to the at least one multi-bushing leg and by flowing the molten material through a bushing in a first position, next to the channel. in the at least one bushing leg, said bushing comprising at least one sidewall and a tip plate or orifice plate through which the molten material flows to form the fibers, and a first screen spaced above said tip plate or orifice plate and having a plurality of holes therein through which the molten material flows, the first screen being attached to said at least one sidewall, the improvement comprising using a second screen lying on top of the first screen in the bushing, said second screen having a mid or central portion and two end portions, one of the two end portions being on one side of the mid or center portion and another of said two end portions being on an opposite side of said mid or center portion, said second screen having a hole area per unit area of said second screen in the mid or central portion of said second screen that is significantly less than a hole area per unit area of screen in the two end portions of said second screen such that a resistance to flow of the molten material through the mid or central portion of said second screen is greater than a resistance to flow of the molten material through the two end portions of the second screen.

24. (Previously presented) The method of claim 23 wherein the hole area per unit area of said mid or central portion of said second screen is at least about 10 percent less than the hole area per unit area of screen in the two end portions.

Related proceedings appendix:

6471

CC: Miller

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RUSSELL DONOVAN ARTERBURN

Appeal No. 2000-0035
Application No. 08/929,836

ON BRIEF

Doctel 4/20/03

MAILED

FEB 20 2003

PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

Before STONER, Chief Administrative Patent Judge, WARREN and
POTEATE, Administrative Patent Judges.

POTEATE, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 2, 8-15 and 21-24. Claims 1, 3, 5-7 and 16-20 are allowed. Claim 4 is objected to as dependent on a rejected base claim but has been indicated as allowable if redrafted in independent form.¹

¹ See Final Rejection, Paper No. 8, mailed December 15, 1998, page 2.

Claims 2, 11, 21 and 23 are illustrative of the subject matter on appeal and are reproduced below:

2. In a bushing for making fibers from a molten material from channel positions, said bushing comprising at least one sidewall and a tip plate or orifice plate through which molten material flows to form the fibers, and a screen having a plurality of holes therethrough and mounted on the interior of the bushing and space above the top of the tip plate or orifice plate, said screen having holes therein and being attached to said sidewall, the improvement comprises a generally mid or central portion of the screen having a hole area per unit area of screen that is significantly smaller than the hole area per unit area of screen of two end portions of the screen, one end portion being on either side of the mid or central portion, one of said end portions being smaller in area than the other of said end portions with the smaller end portion being closest to the channel.
11. A lay in screen of a precious metal or precious metal alloy for laying on top of another screen in a fiberizing bushing having a plurality of holes therethrough, said lay in screen comprised of a mid or central portion and two end portions, said mid or central portion having a hole area per unit area of the central portion that is significantly less than the hole area of the end portions per unit area of the end portions, one of the end portions being smaller than the other end portion, and the thickness of said screen being between about 0.009 and 0.011 inch.
21. A method for forming fibers from a molten material in a channel position of a multi-bushing fiberizing operation comprising at least one sidewall and a tip plate or orifice plate through which the molten material flows to form the fibers, and a screen spaced above said tip plate having a plurality of holes therein, said screen being attached to said sidewall, the improvement comprising a bushing screen in said bushing having a hole area per unit of screen area in a center portion of the screen that is significantly less than the hole area per unit of screen area in two end portions of the screen, an end portion of the screen closest to the said channel being smaller in area than the other end portion.

Appeal No. 2000-0035
Application No. 08/929,836

23. In a method for forming fibers from a molten material in a channel position of a multi-bushing fiberizing operation comprising at least one sidewall and a tip plate or orifice plate through which the molten material flows to form the fibers, and a first screen spaced above said tip plate and having a plurality of holes therein, the first screen being attached to said sidewall, the improvement comprising using a second screen lying on top of the first screen, said second screen having a hole diameter and/or hole density in a central portion of the screen that is significantly less than the respective hole diameter and/or hole density in two end portions of the screen such that resistance to flow of molten glass through the central portion of the second screen is greater than the resistance to flow through the two end portions of the second screen.

The references relied upon by the examiner are:

Stalego	3,810,741	May 14, 1974
Hill	4,330,312	May 18, 1982
Marra et al. (Marra)	4,624,693	Nov. 25, 1986

Grounds of Rejection

1. Claims 8-10 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.²

2. Claim 2 stands rejected under 35 U.S.C. § 102(b) as anticipated by Stalego.

3. Claims 21 and 22 stand rejected under 35 U.S.C. § 103 as unpatentable over Stalego.

² The rejection of claims 8-10 under 35 U.S.C. § 112, first paragraph, has been withdrawn. See Examiner's Answer, Paper No. 13, mailed June 30, 1999, page 2, paragraph (6).

Appeal No. 2000-0035
Application No. 08/929,836

4. Claims 23 and 24 stand rejected under 35 U.S.C. § 103 as unpatentable over Marra.

5. Claims 11-15 stand rejected under 35 U.S.C. § 103 as unpatentable over Hill.

We reverse and enter new grounds of rejection pursuant to 37 CFR § 1.196(b).

Background

Fibers from a molten material such as glass are manufactured by distributing the molten material from a tank furnace into a plurality of fiberizing bushings. Specification, page 1. The fiberizing bushings typically include a tip plate having nozzles into which a molten material flows to form fibers. Id. A screen is positioned between the exit of the tank furnace and the tip plate to homogenize the chemistry and temperature of the molten material and to prevent pieces of unmelted material from entering the tip plate. Id. According to the appellant, conventional screens have a uniform hole pattern and size, and work well provided that the molten material entering the bushings is of a uniform temperature. Id. at page 2. However, if a significantly hotter streak of molten material enters the screen the bushing may break and/or the resultant fiber may be non-uniform. Id.

Appeal No. 2000-0035
Application No. 08/929,836

Appellant has discovered that by arranging the holes in the screen in a certain manner, he obtains a bushing having a higher efficiency than conventional bushings because the screen performs with a much lower break-out rate of the fibers. Appeal Brief, Paper No. 12, received April 27, 1999, page 2. The invention is further directed to a metal screen which includes this arrangement and may be used in a conventional bushing, and to an improved bushing for use in the manufacture of continuous fibers from a molten material such as glass. Id. The inventive screen is illustrated in Figures 6, 6a and 6b. Id.

Discussion

Claims 8-10 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite due to the term "open area" which appears in claim 8

During patent examination, the PTO gives claim language its "broadest reasonable interpretation." In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). In general, the terms in a patent claim are given their ordinary meaning as used in the field of the invention unless the text of the patent indicates that a word has special meaning. Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342, 60 USPQ2d 1851, 1854 (Fed. Cir. 2001). A patentee may be his own lexicographer provided

Appeal No. 2000-0035
Application No. 08/929,836

that he sets forth an explicit definition for a claim term in the patent specification. Id.

The examiner maintains that it is unclear from the specification whether the terms "hole area" and "open area" refer to alternative concepts or are two alternative terms for the same concept. Examiner's Answer, page 8, paragraph (11). According to appellant, it is readily apparent from the specification that the term "open area" has the same meaning as the term "hole area." Appeal Brief, page 6. Appellant references page 5, the penultimate line and page 7, lines 6-9 of the specification wherein "the holes in the screen are defined alternatively as 'openings'" and the terms "hole area and 'open area' are used alternatively." We agree that the referenced portions of the specification clearly indicate that both "hole area" and "open area" have the same meaning/refer to the same concept. We further find that given the explicit use of the term "open area" throughout the specification (see, e.g., page 13, second paragraph and page 16, last paragraph), as well as the description in connection with the term "hole area" (see, e.g., page 7, lines 1-3), one of ordinary skill in the art would be

Appeal No. 2000-0035
Application No. 08/929,836

apprised of the scope of the claims.³ See Allen Eng'g Corp. v. Bartell Indus. Inc., 299 F.3d 1336, 1348, 63 USPQ2d 1769, 1775 (Fed. Cir. 2002) (quoting Personalized Media Communications, LLC v. Int'l Trade Comm'n, 161 F.3d 696, 705, 48 USPQ2d 1880, 1888 (Fed. Cir. 1998)) ("In determining whether the claim is sufficiently definite, we must analyze whether 'one skilled in the art would understand the bounds of the claim when read in light of the specification.'") See also, Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375, 60 USPQ2d 1272, 1276 (Fed. Cir. 2001) (citation omitted) (patent claims must be "sufficiently precise to permit a potential competitor to determine whether or not he is infringing").

Accordingly, the rejection under 35 U.S.C. § 112, second paragraph, is reversed.

We now turn to the prior art rejections.

In making a patentability determination, analysis must begin with the question, "*what is the invention claimed?*" since "[c]laim interpretation, . . . will normally control the remainder of the decisional process." Panduit Corp. v. Dennison

³We do, however, note that amendment of claim 8 to change the term "open area" to "hole area" would render the claim language more consistent with the remaining claims.

Appeal No. 2000-0035
Application No. 08/929,836

Mfg. Co., 810 F.2d 1561, 1567-58, 1 USPQ2d 1593, 1597 (Fed. Cir.), cert. denied, 481 U.S. 1052 (1987). Where a reasonable interpretation of the claims cannot be made, it follows that it is impossible to compare the claimed invention with the prior art. See Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966) ("Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.") A rejection under 35 U.S.C. § 102 or § 103 cannot be based on speculations and assumptions. See In re Steele, 305 F.2d 859, 862-63, 134 USPQ 292, 295-96 (CCPA 1962) and In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

The initial burden of presenting a prima facie case of anticipation or obviousness rests on the examiner. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). For the reasons set forth in detail below, we conclude that the examiner has failed to establish a prima facie case of anticipation or obviousness regardless of how the claims are interpreted. Thus, although we enter a new ground of rejection rejecting all of the pending claims under 35 U.S.C. § 112, second

Appeal No. 2000-0035
Application No. 08/929,836

paragraph, we still reverse the examiner's prior art rejections of claims 2, 11-15 and 21-24.

Claim 2 stands rejected under 35 U.S.C. § 102(b) as anticipated by Stalego

A prior art reference may anticipate when the claim limitation or limitations not expressly found in that reference are nonetheless inherent in it. Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir.), cert. denied, 484 U.S. 827 (1987). Under the principals of inherency, the prior art anticipates if it necessarily functions in accordance with, or includes, the claimed limitations. In re King, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986). However, arguments based on inherency cannot stand where there is no supporting teaching in the prior art. In re Spormann, 363 F.2d 444, 448, 150 USPQ 449, 452 (CCPA 1966). "Inherent anticipation requires that the missing descriptive material is 'necessarily present,' not merely probably or possibly present in the prior art." Trintec Indus. Inc. v. Top-U.S.A. Corp., 295 F.3d 1292, 1295, 63 USPQ2d 1597, 1599 (Fed. Cir. 2002) (citations omitted).

In rejecting claim 2, the examiner relies on his conclusion that "[o]ne can arbitrarily designate the various portions [of

the screen] so that one of said end portions is smaller in area than the other of said end portions." See Examiner's Answer, page 5. However, the examiner fails to identify any teaching in the prior art which supports this conclusion. Accordingly, regardless of how claim 2 is interpreted, we cannot sustain the examiner's rejection since the examiner has failed to meet his burden of establishing a prima facie case of anticipation.

Rejections of claims 21 and 22 under 35 U.S.C. § 103 as unpatentable over Stalego, claims 23 and 24 under 35 U.S.C. § 103 as unpatentable over Marra, and claims 11-15 under 35 U.S.C. § 103 as unpatentable over Hill

"[T]he question under 35 U.S.C. 103 is not merely what the references expressly teach, but what they would have suggested to one of ordinary skill in the art at the time the invention was made." In re Lamberti, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976). Even where a single prior art reference is relied upon to show obviousness, there must be a showing of a suggestion or motivation to modify the teaching of that reference to achieve the claimed invention. In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000). The suggestion or motivation to modify a reference may be implicit from the prior art as a whole rather than expressly stated. Id. However, regardless of whether the examiner relies on an express or

implicit showing, he must provide reasons for finding a limitation to be taught or suggested in the reference. Id.

The facts and reasons set forth by the examiner in rejecting the claims are incomplete, such that he has failed to establish a prima facie case of obviousness. Each of the rejections under 35 U.S.C. § 103 is based on conclusions made by examiner which are simply unsupported by the prior art. As noted above in connection with the rejection of claim 2, it is inappropriate for the examiner to "arbitrarily" define or redesignate various portions of the prior art apparatuses to achieve the claimed invention.⁴ It is also improper for the examiner to conclude that it would have been obvious to make various modifications of the prior art devices and methods to achieve the claimed invention based solely on his own opinion and absent identifying a teaching or suggestion in the prior art which supports his position.⁵ Further, comments made by the examiner such as

⁴Rejection of claims 21-22: "[O]ne can arbitrarily define the regions of the in situ Stalego bushing so that there are two end portions wherein one is closer to the channel than the other." Examiner's Answer, page 6. Rejection of claims 23-24: "[O]ne can arbitrarily redesignate the end portions so that one has only one hole." Id.

⁵Rejection of claims 11-15: "It would have been obvious to have them be the same thicknesses since they are nearly the same in other respects"; "It would have been obvious to take the

Appeal No. 2000-0035
Application No. 08/929,836

"[t]his was not explained because there was no need to explain it" (id. at page 9) do not provide the Board with a basis for rendering a "reasoned decision."

Even if the claims were not indefinite under 35 U.S.C. § 112, second paragraph, the present record does not contain sufficient evidence for us to sustain the examiner's prior art rejections. The rejections under 35 U.S.C. §§ 102 and 103 are reversed.

New Ground of Rejection

Under the provisions of 37 CFR § 1.196(b) we enter the following new ground of rejection.

Claims 2, 4, 8-15 and 21-24 are rejected under 35 U.S.C. § 112, second paragraph, as failing to particularly point out and distinctly claim the invention.

Various claim terms are indefinite in that they lack antecedent basis. See, e.g., claim 2, last line, "the channel"; claim 21, line 7, "said bushing," line 9, "the hole area," and line 10, "said channel". Claims 21 and 22 are indefinite in that, while purporting to be drawn to a method of forming fiber, they fail to set forth any discernible steps involved in the

middle values for each of the ranges because it is a good place to start." Id. at page 7.

claimed processes.⁶ Claims 23 and 24 are drafted in Jepson format and, therefore, impliedly admit that the recited fiberizing operation is old in the art. See generally, MPEP § 2129 (August, 2001). However, Jepson-type claims are still indefinite where, as here, it is unclear what steps are included in the admitted prior art method. It is impossible to determine from the specification and claims what steps are included in the recited "fiberizing operation". In addition, there are several instances wherein the alternative expression "and/or" is used thereby rendering the scope and meaning of the claims unclear. See claim 23, lines 8 and 10, claim 24, line 1. In particular, the relationship between the holes in the central portion and end portions of the screen is ambiguous.

The claims are further indefinite in that they use the relative term "closest to the channel" (claim 2, last line and claim 21, line 10) when the term "the channel" was not previously

⁶ Cf. Ex parte Erlich, 3 USPQ2d 1011 (Bd. Pat. App. & Int. 1986) (non-precedential) (citations omitted) ("While . . . the claims need not recite all of the operating details, we do find that a method claim should at least recite a positive, active step(s) so that the claim will 'set out and circumscribe a particular area with a reasonable degree of precision and particularity,' and make it clear what subject matter [the] claims encompass, as well as making clear the subject matter from which others would be precluded.") See generally, MPEP § 2173.05(q) (8th ed., Aug. 2001).

defined, thereby failing to provide a basis for comparison. See, supra, page 6. In addition, the meanings of various terms used in the claims are not readily apparent from the prior art or from the specification and drawings, for example, the term "channel positions" (claims 2, 21 and 23, line 2). The examiner and appellant should thoroughly review all claims to ensure that all indefiniteness problems are corrected.

It is well established that "definiteness of the language employed must be analyzed, not in a vacuum, but always in light of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art." In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). Section 112, second paragraph, requires that: (1) the claim set forth what "the applicant regards as his invention" and (2) the claim be sufficiently "definite." See Allen, 299 F.3d at 1348, 63 USPQ2d at 1775 (quoting Solomon v. Kimberly-Clark Corp., 216 F.3d 1372, 1377, 55 USPQ2d 1279, 1282 (Fed. Cir. 2000) (quoting 35 U.S.C. § 112, second paragraph)). When the present claims are viewed in light of this authority, it does not appear that one skilled in the art would be capable of determining their metes and bounds even when read in light of the specification. Therefore, we reject

Appeal No. 2000-0035
Application No. 08/929,836

claims 2, 4, 8-15 and 21-24 under 35 U.S.C. § 112, second paragraph, as failing to particularly point out and distinctly claim the subject matter which applicant regards as his invention. See Allen, 299 F.3d at 1349, 63 USPQ2d at 1776 (citing In re Zletz, 893 F.2d 319, 322, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) (claims which do not particularly point out and distinctly claim what the inventor regards as his invention must be rejected under Section 112, second paragraph)).

Time Period for Response

This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b). 37 CFR § 1.196(b) provides that, "A new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (§ 1.197(c)) as to the rejected claims:

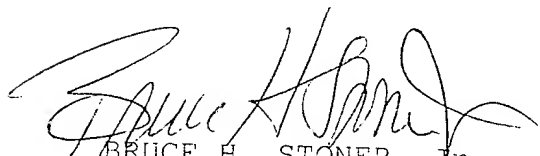
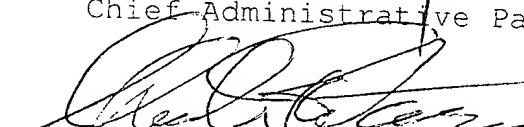
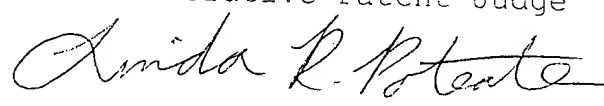
(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .

Appeal No. 2000-0035
Application No. 08/929,836

(2) Request that the application be reheard under
§ 1.197(b) by the Board of Patent Appeals and
Interferences upon the same record. . . .

No time period for taking any subsequent action in
connection with this appeal may be extended under 37 CFR
§ 1.136(a).

REVERSED; 37 CFR § 1.196(b)

)	
BRUCE H. STONER, Jr.)	
Chief Administrative Patent Judge)	
)	
CHARLES F. WARREN)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS
)	AND
LINDA R. POTEATE)	INTERFERENCES
Administrative Patent Judge)	

LRP/LBG